

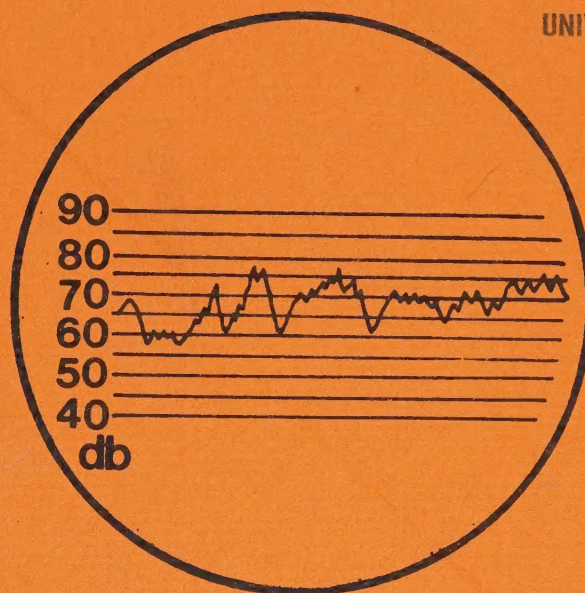
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noise element

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UNIVERSITY OF CALIFORNIA



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general plan city of orange

RESOLUTION NO. 4757

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RESOLUTION NO. 4757

A RESOLUTION OF THE CITY COUNCIL OF THE
CITY OF ORANGE ADOPTING THE NOISE ELEMENT
AS PART OF THE GENERAL PLAN OF THE CITY OF
ORANGE.

WHEREAS, Section 65302(g) of the California Government Code requires the adoption of a Noise Element as a part of the General Plan of the City; and

WHEREAS, the City Council has received a recommendation from the Planning Commission concerning the Noise Element and has held a public hearing to consider the adoption of the Noise Element as a part of the General Plan; and

WHEREAS, the City Council hereby finds and determines that a Noise Element has been prepared and presented to the Council in conformity with the requirements and guidelines of the California law; and

WHEREAS, the City Council desires to adopt the Noise Element in order to have a general policy establishing the City's objectives and intention regarding noise and noise sources in the community, desired maximum noise level by land use categories, and standards and criteria for compatible noise levels for local, stationary, and mobile noise sources; and

WHEREAS, the Noise Element is an important link in the overall Comprehensive General Planning effort by the City of Orange, and, when used in conjunction with the other General Plan Elements, will serve as a valuable tool in guiding and directing the future growth of the community; and

WHEREAS, implementation of the Noise Element of the General Plan will serve to achieve many of the stated goals of the community and promote the general welfare, health and safety of its citizens; and

WHEREAS, the City Council has accepted the findings of the Environmental Review Board to prepare Negative Declaration 448.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Orange hereby adopts the Noise Element as part of the Comprehensive General Plan for the City of Orange and hereby instructs the staff to implement and execute the measures outlined in the aforementioned Noise Element.

BE IT FURTHER RESOLVED that the City Clerk is hereby directed to place a copy of the aforementioned Noise Element

on file in the Office of the City Clerk together with a date and time stamp indicating the time and date subsequent to the Council approval of this resolution that the City Clerk placed said element of record in the Office of the City Clerk.

ADOPTED this 28th day of March, 1978.

ROBERT D. HOYT
MAYOR OF THE CITY OF ORANGE

ATTEST:

CHARLOTTE M. JOHNSTON, CMC
CITY CLERK OF THE CITY OF ORANGE

I hereby certify that the foregoing resolution was duly and regularly adopted by the City Council of the City of Orange at a regular meeting thereof held on the 28th day of March 1978, by the following vote:

AYES: COUNCILMEN: BARRERA, HOYT, PEREZ

NOES: COUNCILMEN: NONE

ABSENT: COUNCILMEN: SMITH, BEAM

CHARLOTTE M. JOHNSTON, CMC
CITY CLERK OF THE CITY OF ORANGE

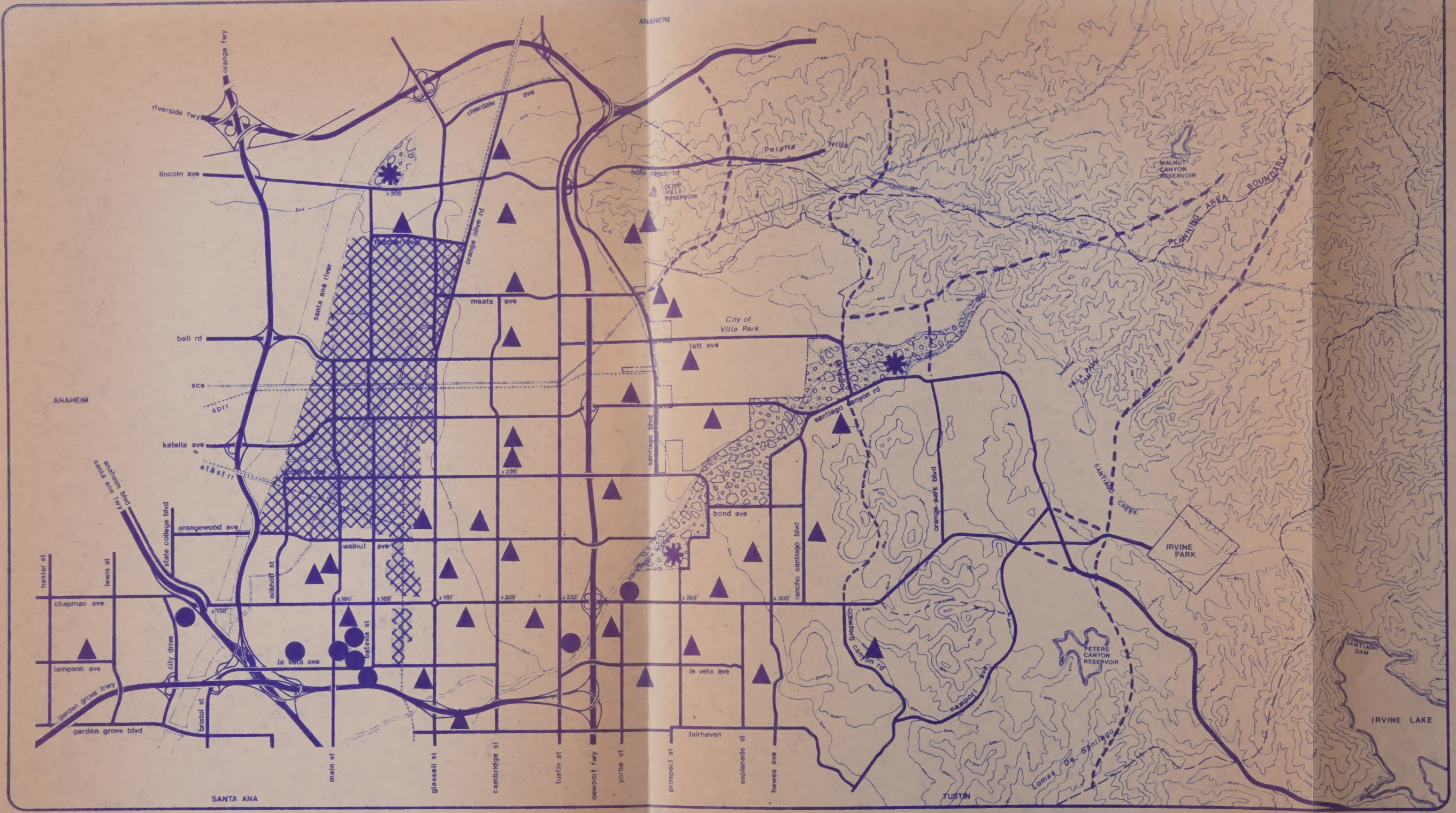
STATE OF CALIFORNIA)
COUNTY OF ORANGE) ss.
CITY OF ORANGE)

I, CHARLOTTE M. JOHNSTON, CMC, City Clerk of the City of Orange, California,
DO HEREBY CERTIFY that the foregoing Resolution No. 4757 is a true
and correct copy of the original as appears on record in this office.

WITNESS my hand and seal this 26th day of July, 19 78.

(SEAL)

Charlotte M. Johnston, CMC
City Clerk of the City of Orange



city of orange general plan
noise element

legend

STREETS

—

FREEWAYS

—

ARTERIAL HIGHWAYS

+++++

RAILROADS

SAND AND GRAVEL EXTRACTION AREAS

•••••

SG ZONED AREAS

•••••

BATCH PLANT

XXXXX

INDUSTRIAL AREAS

▲

SCHOOLS

●

HOSPITALS & CONVALESCENT HOMES

0 1000 2000 3000

department of
planning and
development services

EXHIBIT III

CITY COUNCIL

Robert D. Hoyt, Mayor
Don E. Smith, Mayor Pro tem
Fred Barrera
James Beam
Jess Perez

CITY MANAGER

Gifford W. Miller

PLANNING COMMISSION

Joanne Coontz, Chairman
Carmine Master, Vice-Chairman
Don Ault
Dave Hart
Robert Mickelson

PLANNING & DEVELOPMENT SERVICES

Bert K. Yamasaki, Director

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INTRODUCTION

The Noise Element is, by State law, a mandatory component of the General Plan. Guidelines prepared by the California State Council on Intergovernmental Relations (CIR) provide local jurisdictions with a good basic outline to follow when preparing such an Element. The guidelines were specifically written to assist local jurisdictions in meeting the requirements of the law and we have followed these guidelines as closely as possible.

The broad requirements for the Element as stated in Government Code Section 65302 (g) are:

"A noise element, which shall recognize guidelines adopted by the Office of Noise Control pursuant to Section 39850.1 of the Health and Safety Code, and which quantifies the community noise environment in terms of noise exposure contours for both near and long-term levels of growth and traffic activity. Such noise exposure information shall become a guideline for use in development of the land use element to achieve noise compatible land use and also to provide baseline levels and noise source identification for local noise ordinance enforcement.

The sources of environmental noise considered in this analysis shall include, but are not limited to the following:

- (1) Highways and freeways
- (2) Primary arterials and major local streets
- (3) Passenger and freight on-line railroad operations and ground rapid transit systems.
- (4) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights, jet engine test stands, and all other ground facilities and maintenance functions related to airport operation.
- (5) Local industrial plants, including, but not limited to, railroad classification yards.
- (6) Other ground stationary noise sources identified by local agencies as contributing to the community noise environment.

The noise exposure information shall be presented in terms of noise contours expressed in community noise equivalent level (CNEL) or day-night average level (Ldn). CNEL means the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7 PM to 10 PM and after addition of 10 decibels to sound levels in the night before 7 AM and after 10 PM. Ldn means the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of 10 decibels to sound levels in the night before 7 AM and after 10 PM.

The . . . contours shall be shown in minimum increments of 5 db and shall continue down to 60 db. For . . . areas deemed noise sensitive, including but not limited to, areas containing schools, hospitals, rest homes, long-term medical or mental care . . . facilities, or any other land use areas deemed noise sensitive by the local jurisdiction, the noise exposure shall be determined by monitoring.

A part of the noise element shall also include the preparation of a community noise exposure inventory, current and projected, which identifies the number of persons exposed to various levels of noise throughout the community.

The noise element shall also recommend mitigating measures and possible solutions to existing and foreseeable noise problems . . .

The State, local or private agency responsible for the construction . . . maintenance, or operation of those transportation, industrial, or other commercial facilities specified in paragraph 2 of this subdivision shall provide to the local agency producing the general plan, specific data relating to current and projected levels of activity and a detailed methodology for the development of noise contours given this supplied data, or they shall provide noise contours as specified in the foregoing statements.

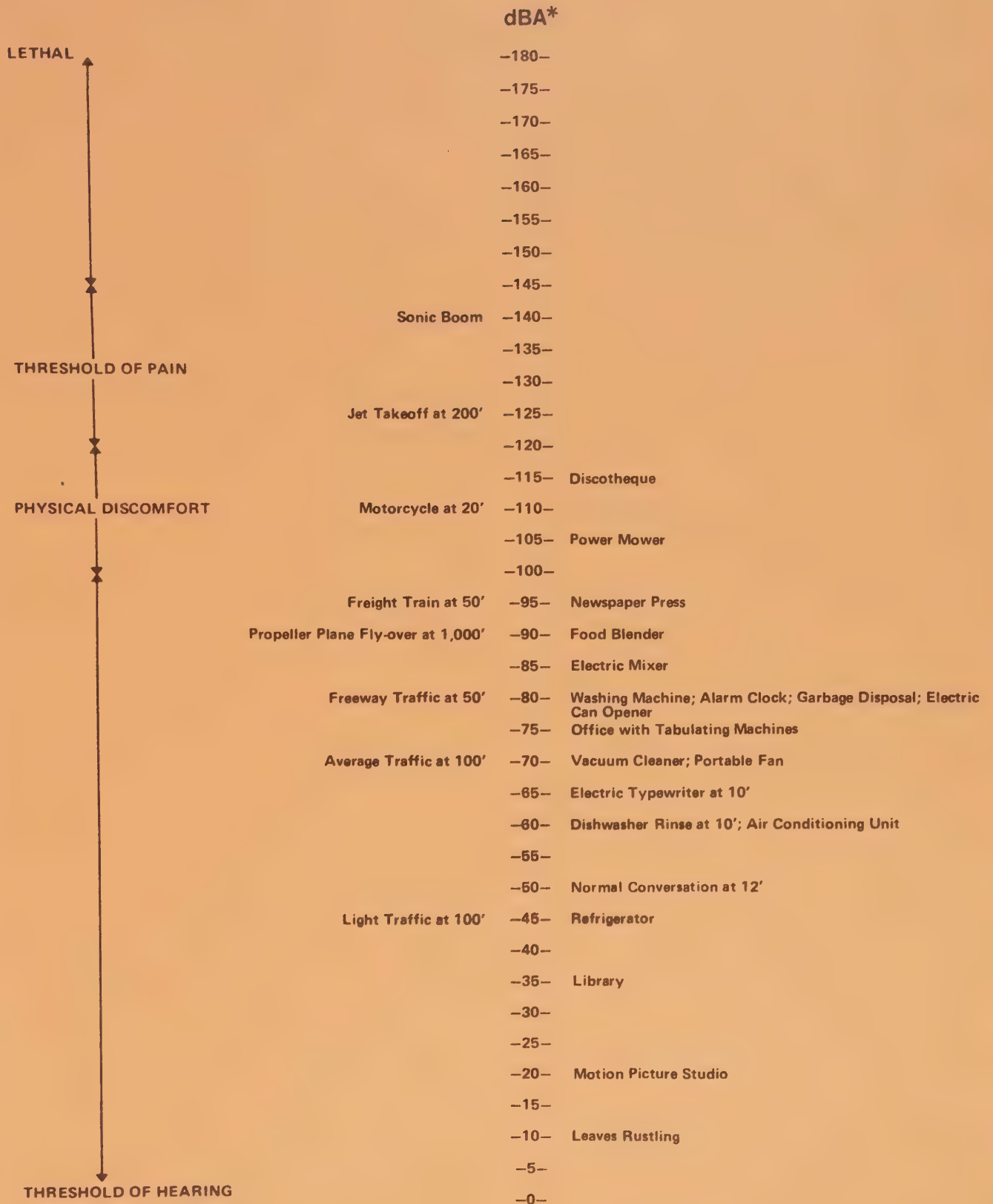
It shall be the responsibility of the local agency preparing the general plan to specify the manner in which the noise element will be integrated into the city or county's zoning plan and tied to the land use and circulation elements and to the local noise ordinance. The noise element, once adopted, shall also become the guideline for determining compliance with the state's noise insulation standards, as contained in Section 1092 of Title 25 of the California Administrative Code."

The purpose of the Noise Element is to serve as an official guide to the City Council, the Planning Commission, city departments, individual businessmen and citizens, and private organizations concerned with noise and the effects of noise in the City of Orange. This Element provides the appropriate reference material to be used in connection with actions on various public and private development matters in the community. The Element includes definitions, objectives, policies, standards, criteria and programs to be considered and used when decisions are to be made which may affect our noise environment.

NOISE - WHAT IS IT?

Noise is a part of every modern city. There is noise from motorized labor-saving devices, transportation vehicles, recreational activities and devices, and even from property and life saving activities. People can tolerate or ignore a certain amount of noise but certain adverse effects, including possible outright hearing impairment, are present in many exposures to noise.

ACOUSTICAL SCALE



* The unit of sound is the decibel (dB). The loudness of sound is typically measured using a sound meter, the A-Scale of which corresponds closely to the way the human ear perceives sound. Thus the sound level for noise evaluations is frequently expressed in dBA.

EXHIBIT I

Sound refers to anything that is or may be heard. Noise is unwanted or unpleasant sound.

The sound from an individual source decreases with increasing distance. The amount of sound reaching the receiver is affected by barriers between the source and receiver (such as walls, landscaping, and buildings) atmospheric conditions (such as wind, temperature, and humidity), and the number of sources emitting sound.

The typical community noise environment is comprised of a background noise level and higher noise levels, frequently transportation oriented. Since the background level is lower at night, the problems posed by higher noise levels from individual sources are more pronounced during nighttime hours, a period when most people demand quiet.

The acoustical scale shown in Exhibit I depicts the decibel levels (dBA) of common machines and conditions in our environment.

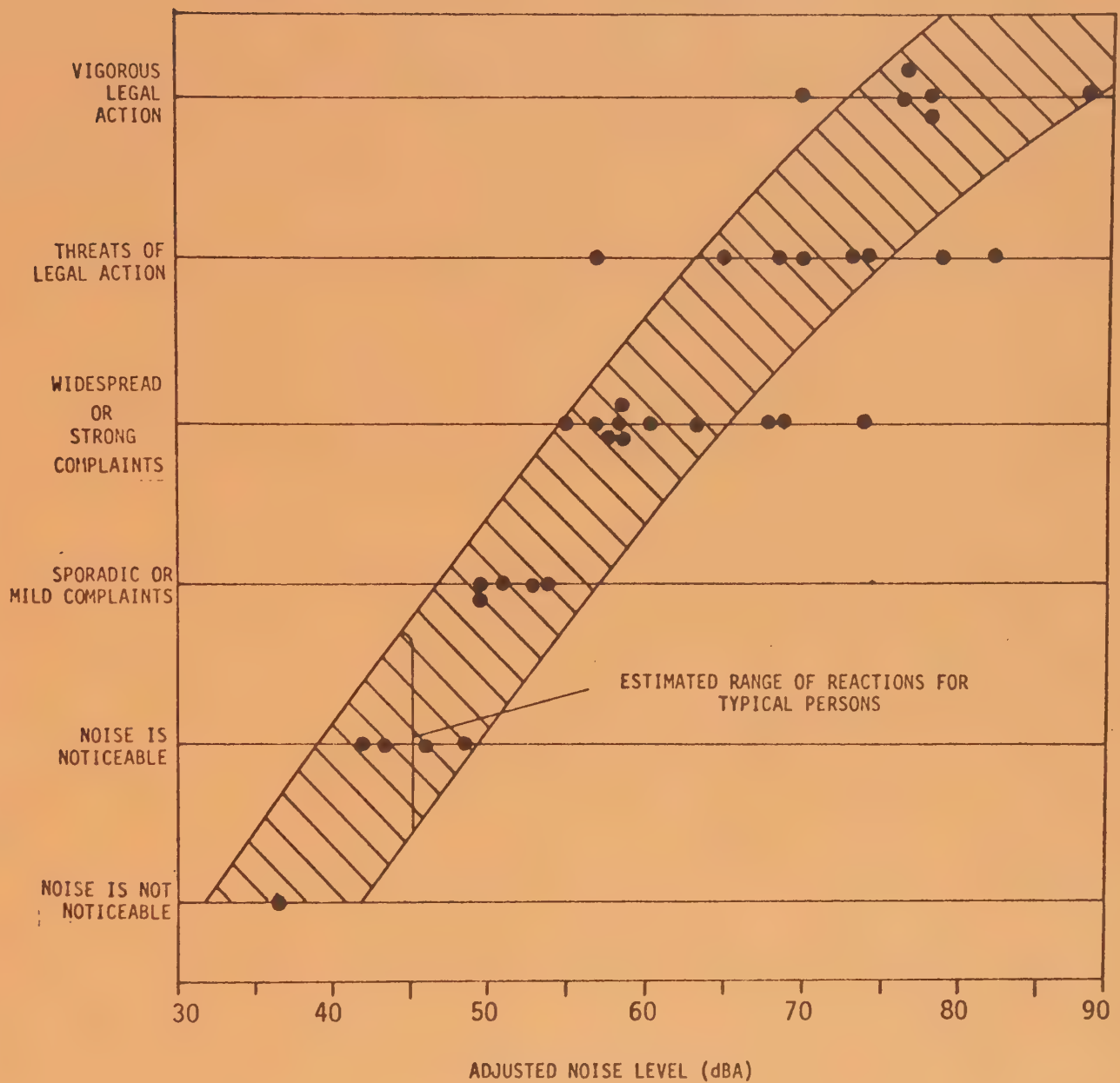
Any definition of noise must also admit to both a degree of subjectivity and an annoying or obnoxious aspect of sound that is inherent in defining noise, however, the degree to which noise is viewed subjectively does not negate the fact that noise can, and often does affect the full range of human activity.

Although many findings related to noise lend themselves to a variety of interpretations and controversy, in summary, there is general agreement on the following:

- (1) Noises of sufficient intensity have caused irreversible hearing damage.
- (2) Although medical authorities have not been able to prove noise is a cause of physiological change in humans, nevertheless, it is felt that it is a contributing factor.
- (3) The effects of noise are cumulative and, therefore, the levels and durations of noise exposure must be taken into account in any overall evaluation.
- (4) Noises can interfere with speech and other communications as well as the thought process.
- (5) Noise can be a major source of annoyance by disturbing sleep, rest, and relaxation.

When community noise levels have reached sufficient intensity, social action has occurred to reduce their effects. This has often taken the form of creating new organizations, or using existing ones, to press for regulation by means of laws, ordinances and standards. The following Exhibit II graphically portrays what might be expected in the form of community response to various noise levels in Orange.

EMPIRICAL RELATIONSHIP BETWEEN NOISE LEVEL AND COMMUNITY RESPONSE



RESPONSES SHOWN ARE FOR CONTINUOUS DAYTIME, NONIMPULSIVE, BROAD BAND NOISES IN QUIET SUBURBAN NEIGHBORHOODS WITH WINDOWS OPEN, WHERE RESIDENTS HAVE HAD NO PREVIOUS EXPOSURE TO NUISANCE NOISES.

* Adapted from: Land Use Plan for Area Surrounding Santa Clara County Airports, (San Jose, Ca., August 1973).

EXHIBIT II

For humans, sound has two significant characteristics: pitch and loudness. In terms of affecting people, pitch is generally an annoyance---the sound of chalk scraped over a blackboard surface. Pitch is the height or depth of a tone or sound depending on the relative rapidity of the vibrations by which it is produced. In low pitched sounds, the vibrations are relatively far apart. In high pitched sounds, they are squeezed closer together.

Loudness, on the other hand, can affect our ability to hear. It is the intensity of sound waves combined with the reception characteristics of the ear. The intensity of a sound wave may be compared with the height of an ocean wave. In terms of sound effect, this intensity is how hard a sound wave hits an object, a characteristic which can be measured precisely with instruments. But the loudness heard by a human ear is slightly different from the purely physical values. Our ears hear sound at intermediate frequencies better than sound at very low or very high frequencies. Therefore, sounds which have varying intensities and with intermediate frequencies can be more harmful to the human ear.

Sound is measured by decibels. The zero on the decibel scale is equivalent to the lowest level of sound that a healthy, unimpaired human ear can detect.

Decibels are not linear units like miles or pounds. Rather, they are representative points on a sharply, exponentially rising curve. Thus, while 10 decibels is 10 times more intense than one decibel, 20 decibels is 100 times more intense (10^2), 30 decibels is 1,000 times more intense (10^3), and so forth. One hundred decibels, therefore, is 10 billion times as intense as one decibel, or, represents 10 billion times as much acoustic energy. The reason for such a complicated scale is simply that the human ear detects a wide range of acoustic energy.

Sound levels are measured at their source; thus, the further one is from the source, the lesser the decibel rating will be. These ratings should, therefore, be regarded as averages of noises in an area and should be used primarily for comparative purposes.

The gentle rustle of leaves, for example, is rated as 10 decibels, while a typical office has about 50 decibels of background noise. Moderate or average traffic noise ranges around 70 decibels; a police whistle hits 80, freight trains rank just below thunder at 100 decibels. At just above 120 decibels the ear begins to feel pain.

As mentioned previously, noise is unwanted or unpleasant sound. Sound, as we have seen, has two principal characteristics, pitch and loudness. Both these characteristics have subjective limits, that, when exceeded, are annoying or obnoxious, thereby causing simple sound to move into the category of noise.

There are characteristics other than pitch or loudness that affect perceptual qualities of noise. These characteristics deal principally with time, both the duration of the event and the period of day of occurrence. Hearing loss is directly affected not only by intensity and frequency, but also by the duration of exposure. Maximum noise exposures are a function of time. When exposure to noise is intermittent rather than continuous, the inner ear can tolerate either greater intensity or the same intensity for longer periods. Occasional relief from noise reduces the possibility of hearing loss.

Also as mentioned earlier, time or period of day of occurrence is another factor contributing to an objectionable quality of noise. Noise levels that normally occur during daylight hours and are not considered objectionable, may be excessive when they occur at night. The criteria used to determine whether the levels are excessive or not should be based on the activity. Daytime residential levels of 50 dB(A) are excessive when continued on into the night time sleeping hours. The U. S. Environmental Protection Agency suggests levels below 45 dB (A) for sound sleep. ¹




Noise has an impact on the individual and collectively, society's health. The World Health Organization defines health as a state of physical, mental and social well-being and not merely the absence of disease or infirmity. ² Using this definition, it is evident that noise can be considered as having an important influence on the health of man. Because of its pervasive influence in all settings, activities and walks of life, it has been often cited as a major source of annoyance as well as a threat to physical and mental health. For most people, the usual consequences of noise are associated with interference with listening to speech or other sounds, distraction at home and on the job, disturbance of rest and sleep, and disruption of recreational pursuits. All of the foregoing can be considered components of the quality of life.

1 - Council on Environmental Quality, The Sixth Annual Report of the Council on Environmental Quality, (December 1975), page 85

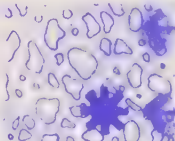

2 - United States Department of Commerce, The Noise Around Us, (September 1970) page 13

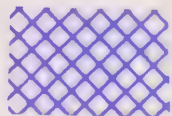
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STREETS

-  FREEWAYS
-  ARTERIAL HIGHWAYS
-  RAILROADS

SAND AND GRAVEL EXTRACTION AREAS

-  — SG ZONED AREAS
-  — BATCH PLANT



INDUSTRIAL AREAS



SCHOOLS



HOSPITALS &
CONVALESCENT HOMES

VINE LAKE



department of
planning and
development services

EXHIBIT III

NOISE SOURCES IN ORANGE

There are two alternative means of handling noise intrusions - eliminate the problem by shielding, escaping, or removing the noise source; or, adapt to the new environment. Adaptions to noise intrusions may adversely affect group inter-relationships. The intrusion of noise can affect every facet of human existence, from one's family life to one's occupational, educational, recreational, and religious activities. The possible adverse effects of man's individual reactions to noise - his physical and emotional maladies - may be compounded in the group situation. More importantly though, noise may threaten the ability to communicate and to comprehend. For example, children who live or attend school near sources of excessive noise can be handicapped, not only in their learning process, but also in their socialization process.

Motor Vehicles

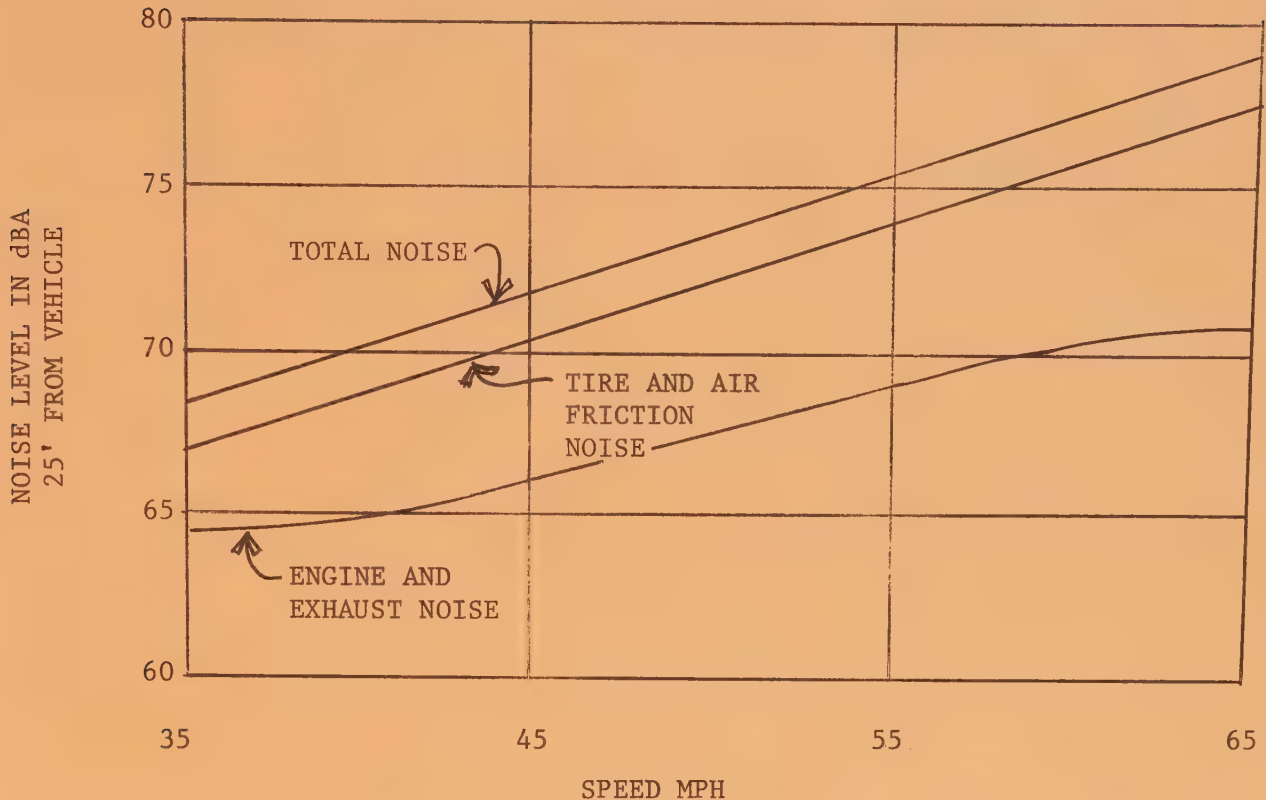
By far the greatest contributor to the community noise level in Orange is motor vehicle and road noise. Because of the comprehensive nature of our arterial highway system in the developed area of the City, as well as in those areas planned for future development, the corresponding resultant noise levels have some effect on the entire city. Exhibit III shows the current arterial highway system within the Planning Area of the City of Orange. Also included on this Exhibit is the existing State of California Freeway System and the existing lines of major railway traffic.

Streets, alleys and railroad rights-of-way constitute the second largest land use in the City of Orange. They utilize approximately 20% of the total amount of all acreage in Orange. The gridiron pattern has been employed as a street system for the most part in that portion west of the Newport Freeway. A fragmented grid exists east of this freeway facility.

Automotive noise has two components, engine and exhaust noise, and tire friction noise. Variation in their combined total volume depends on several factors, principally among them is vehicle speed. A direct relationship exists between speed and tire friction noise. Also, there is an "S" curve relationship of engine and exhaust noise and speed. The following chart, taken from a report entitled, "Design of Noise Reduction for Foothill Expressway" graphically portrays this aspect of noise.³ The chart shows an average condition which assumes proper muffling of engines.

3 - ESL Incorporated, Design of Noise Reduction for Foothill Expressway, (Sunnyvale, California, March 1971).

COMPONENTS OF AUTOMOBILE NOISE



Minor variations in decibel levels also occur due to road surface and tire conditions. Test data indicates a variation of four to five decibels over different road surfaces.

The ESL report indicates that truck tire design has a great deal to do with total noise produced by tire friction. Test data comparing different tread design and new, used and retread tires, taken on a vehicle coasting at a speed of 55 M.P.H., indicates a change of from 76dB(A) to 97dB(A) on concrete and from 76dB(A) to 88dB(A) on asphalt pavement.⁴

The noise levels emanating from any form of transportation vehicle are fairly typical throughout any urban region and the City of Orange is, without doubt, a part of a highly urban and urbanizing region. Typical noise emission levels for various vehicles are shown on the following Exhibit which was first printed in a report done for the Environmental Protection Agency in 1971 by Wyle Laboratories

4 - ESL Incorporated, Design of Noise Reduction for Foothill Expressway, (Sunnyvale, California, March 1971) p.2-20.

NOISE EMISSION LEVELS FOR TRANSPORTATION VEHICLES

HIGHWAY GENERATORS 50 FEET

- Passenger Cars
- Sports Cars
- Compact and Import Cars
- Heavy Trucks
- Light Trucks
- Highway Buses
- Trash Compactors
- Large Motorcycles
- Small Motorcycles

RAIL LINES AT 50 FEET

- Diesel Locomotives
- Freight Cars

RAPID TRANSIT AT 50 FEET AT 20 TO 30 MPH (Steel wheels on steel rails)

AIRCRAFT AT 1000 FEET ●●● APPROACH --- TAKE OFF

- 4 Engine Turbofan (B-707, DC-8)
- 4 Engine Widebody Turbofan (B-747)
- 3 Engine Widebody Turbofan (DC-10, L-1011)
- Single-engine Propeller
- Multi-engine Propeller
- Executive Jet

VTOL CRAFT AT 500 FEET

- Light Turbine Helicopter (2-7 passenger)
- Light Piston Helicopter (2-7 passenger)
- Heavy Helicopter (20-50 passenger)

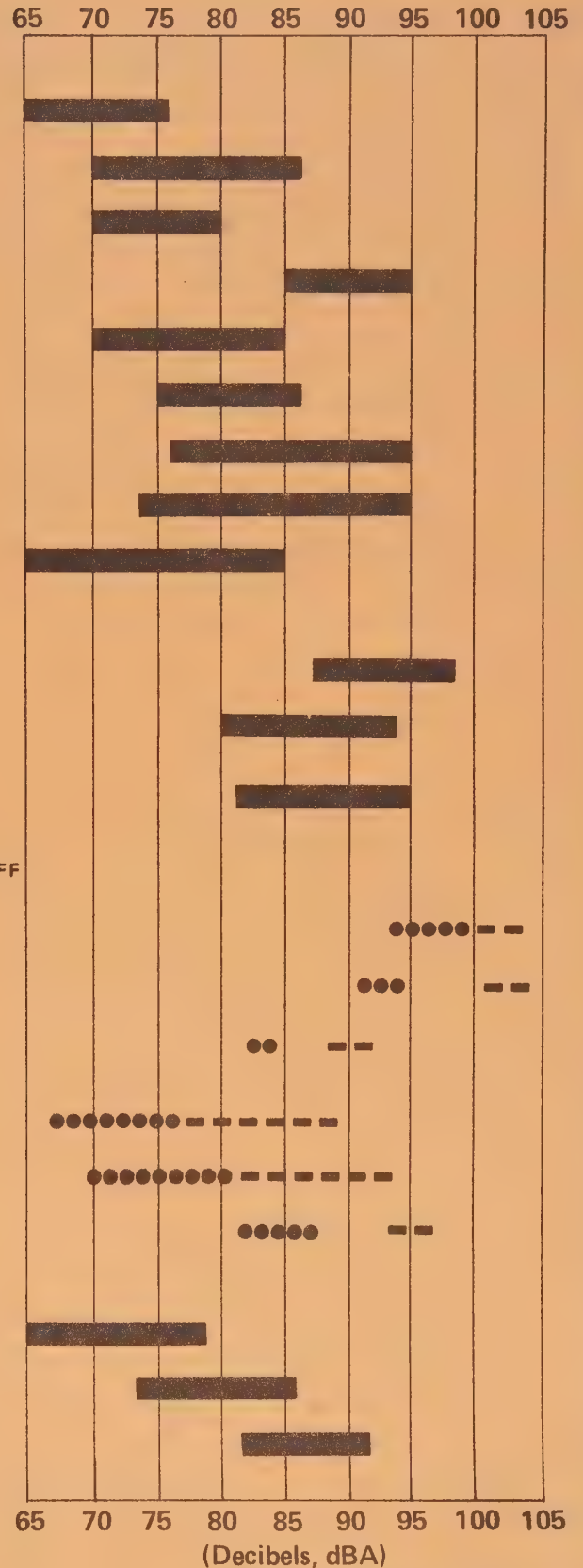


EXHIBIT IV

and is entitled, "Transportation Noise and Noise from Equipment Powered Internal Combustion Engines." The noise levels emanating from a typical arterial highway and freeway are shown on Exhibit V and reflect those general conditions which may be assumed adjacent to any of our major transportation system components. As mentioned earlier, Exhibit III identifies the arterial highway system, freeways and major rail transportation lines within the Planning Area for Orange.

All new development to be used for human habitation adjacent to or near the arterial highway and freeway system should be sound attenuated to provide for acoustical privacy consistent with the Noise Insulation Standards, California Administrative Code, Title 25, Chapter 1, Subchapter 1, Article 4 and all other existing and future requirements outlined in the State Housing Code. Residential spaces to be located in exterior noise exposure areas of 65 dB or greater may be undesirable and detailed acoustical analysis of such spaces should be undertaken to develop adequate exterior noise mitigation plans in conjunction with any residential development in such areas. This analysis must indicate that the interior living space of the units will not exceed a CNEL of 45 dB. Walls, windows, vents, roofing systems, etc., which reduce the exterior noise to the prescribed interior standard (45 dB) may be required to comply with the provisions of the Noise Insulation Standards (CAL ADM CODE: Title 25 Section 1094). These standards are consistent with the provisions of Ordinance No. 17-74, the Noise Ordinance of the City of Orange. As a general rule the intrusive noise levels that should be maintained in the various land use categories in the City of Orange are shown on the following chart.

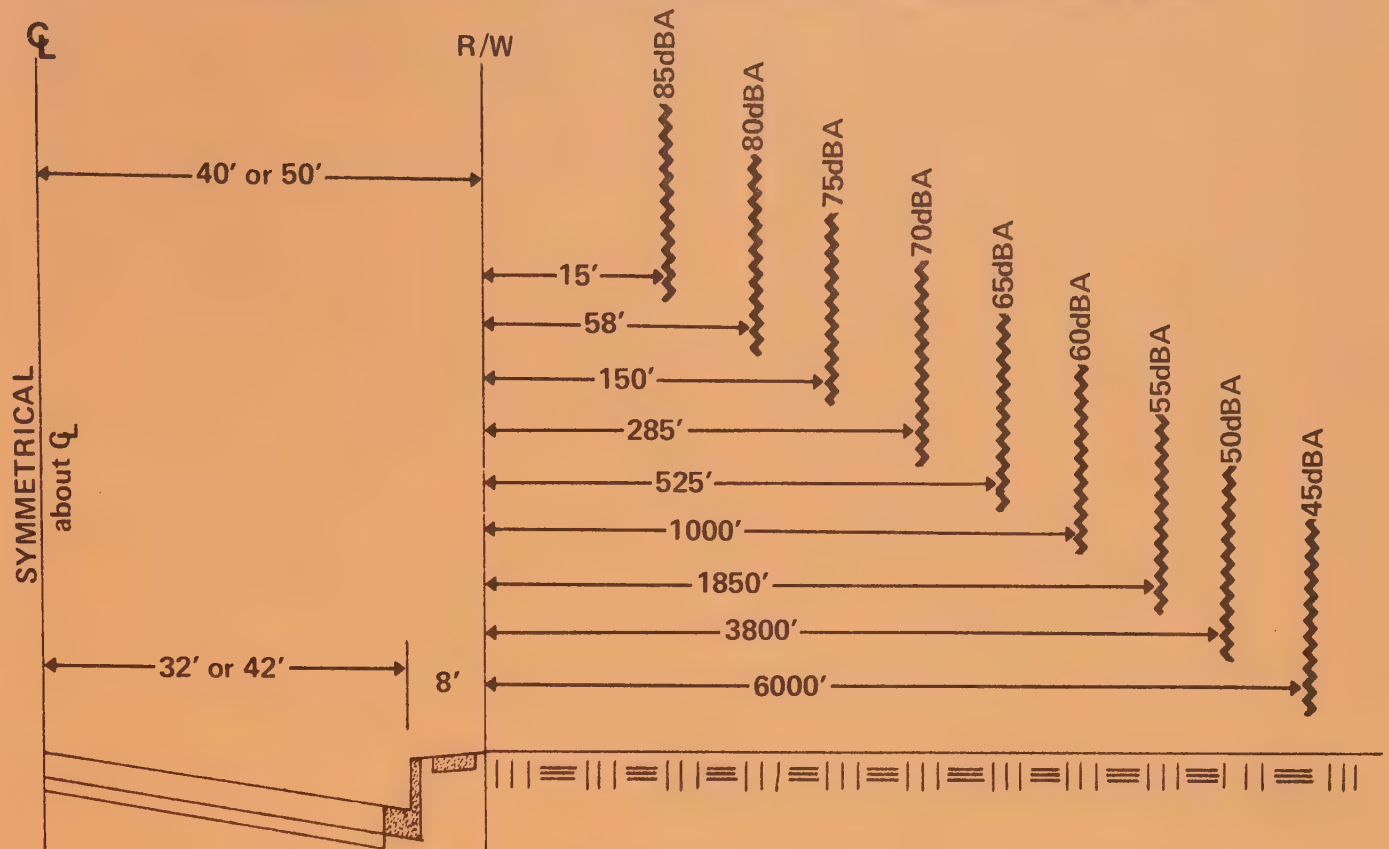
*INTRUSIVE NOISE LEVELS**

<i>Zone</i>	<i>Time</i>	<i>Quiet</i>	<i>Slightly Noisy</i>
<i>Residential</i>	<i>10 pm - 7 am</i>	<i>45 dB(A)</i>	<i>50 dB(A)</i>
	<i>7 pm -10 pm</i>	<i>50</i>	<i>55</i>
	<i>7 am - 7 pm</i>	<i>55</i>	<i>60</i>
<i>Multi-Family</i>	<i>10 pm - 7 am</i>	<i>50 dB(A)</i>	<i>55 dB(A)</i>
	<i>7 am -10 pm</i>	<i>55</i>	<i>60</i>
<i>Commercial</i>	<i>10 pm - 7 am</i>	<i>55 dB(A)</i>	<i>60 dB(A)</i>
	<i>7 am -10 pm</i>	<i>60</i>	<i>65</i>
<i>Industrial</i>	<i>anytime</i>	<i>70 dB(A)</i>	<i>70 dB(A)</i>

Source: League of California Cities, Quiet City Report.

** The sound level limits of intrusive noise across commercial and residential boundaries.*

TYPICAL ARTERIAL HIGHWAY NOISE LEVELS



TYPICAL FREEWAY NOISE LEVELS(701A)

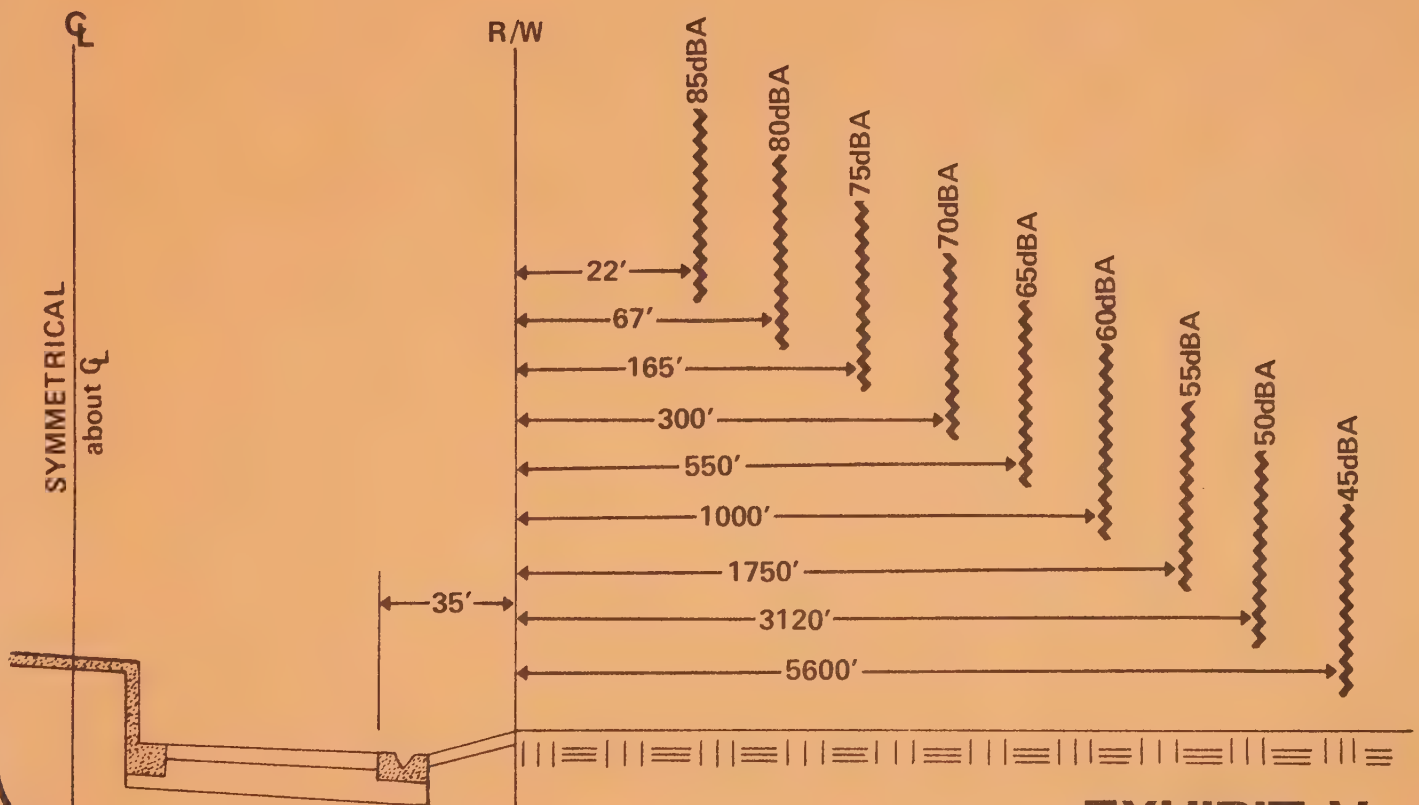


EXHIBIT V

Railroads

Railroad trains are characterized by infrequent operation compared to highway vehicles. However, the noise event is much different. The train has a rapidly increasing level on approach, an extended duration of high noise as the cars pass and a rapid fall as the train leaves. Typically, as one moves away from the track, the noise level falls off between three and six dBA for each doubling of distance. A good rule is about 4.5 db decrease per doubling of distance, or 4.5 db increase for a halving of distance.

Unlike highways, the peak level and average level do not blend together as the distance increases unless rail volumes approach highway volumes.

Rail line operations noise levels have three components:

- (1) Engine noise, that noise produced from the diesel in developing motive force;
- (2) Car noise, that noise produced by the cumulative car wheels as they roll over the track;
- (3) Track noise, that noise developed due to the conditions of track--e.g., grade, curvature, switches or gelled track (track noise is actually a part of car noise.)

The Atchison, Topeka and Santa Fe Railroad Company and the Southern Pacific Transportation Company operate rail lines in the westerly portion of the City of Orange and these are primarily to serve the industrial area. These rail lines are shown on Exhibit III. The portion of the A.T.&S.F. line which runs in a north-south direction south of Walnut Avenue is also a part of the regular Amtrack line providing passenger service between Los Angeles and San Diego on a regular basis.

Noise sources from the existing railroad lines primarily impact the industrial portion of the City as can be seen by a review of the Land Use Element of the General Plan. Exhibit VI shows typical noise levels to be expected as a result of normal railroad operations in the City of Orange and shows the average spatial distance away from rail operations that is necessary to achieve specific exterior noise levels. In those areas where the tracks lie adjacent to existing arterial highways and existing industrial uses a multiple component noise source has been created.

Fortunately, most all of the land in the City of Orange which is adjacent to operating rail lines has been developed or is developing for industrial uses. The remaining land adjacent to rail lines in non-industrial areas has also been virtually all developed and has, in most cases, a spatial buffer adjacent to the line in the form of Southern California Edison Company easements or arterial highways. In those few instances where new residential development might occur near rail transportation lines special design considerations should be required of the developer of the property to mitigate any adverse noise impacts. In such cases the potential noise impact should be thoroughly evaluated in the Environmental Impact Report review process.

TYPICAL RAILROAD NOISE LEVELS (CNEL,dB)

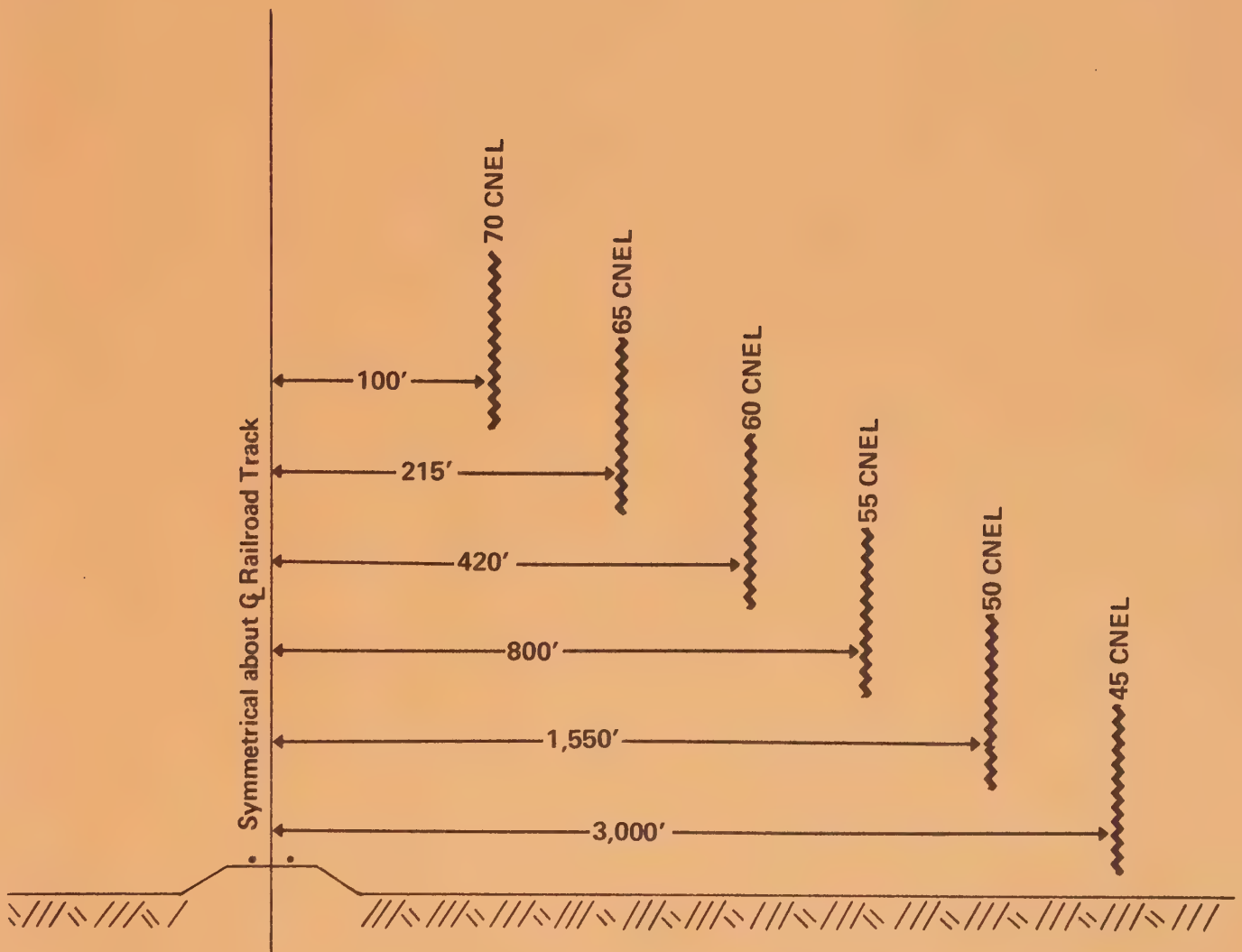


EXHIBIT VI

Industrial Areas

In general, industrial noise producing activity is not considered excessive when experienced at residential locations within the City. The industrial area of the city has for many years been planned to occupy about 1250 acres in the northwesterly portion of the community. The area is bordered on its westerly edge by the Santa Ana River, which is about 1000 feet wide in this area and is the major drainage course in the county. The other three edges of the industrial area are generally bounded by arterial highways which do provide some spacial distance from possible noise sources in the industrial area. The City of Orange noise ordinance states, in part, that:

"It shall be unlawful for any person at any location within the City to create noise which causes the noise level when measured within a dwelling unit on residential property during the period 10:00 p.m. to 7:00 a.m. to exceed:

- (1) 45 dB(A) for a cumulative period of more than five minutes in any hour; or
- (2) 50 dB(A) for a cumulative period of more than one minute in any hour; or
- (3) 55 dB(A) for any period of time."

Exterior noise standards for all residential properties within the City are:

- (1) 55 dB(A) between 7:00 a.m. - 10:00 p.m.
- (2) 50 dB(A) between 10:00 p.m. - 7:00 a.m.

The Ordinance further prohibits any person at any location to create any noise which causes the noise level when measured on any residential property to exceed:

- (1) The noise standard for a cumulative period of more than thirty minutes in any hour; or
- (2) The noise standard plus 5 dB(A) for a cumulative period of more than fifteen minutes in any hour; or
- (3) The noise standard plus 10 dB(A) for a cumulative period of more than five minutes in any hour; or
- (4) The noise standard plus 15 dB(A) for a cumulative period of more than one minute in any hour; or
- (5) The noise standard plus 20 dB(A) for any period of time.

Special consideration should be given to any new industrial development that occurs on the periphery of the industrial area, particularly where it is near an existing residential area, so that potential stationary noise sources are designed in such a way as to have no adverse noise impact on adjacent properties.

COMMUNITY GOALS AND POLICIES

This Element of the General Plan for the City of Orange is to be used in establishing uniformity of policy and direction within the City concerning actions to eliminate or minimize noise impacts on the community.

Certain community goals and policies dealing with the noise environment have been developed as a part of this Element and they should be kept in mind and used when evaluating and making decisions on any development proposals within the community.

Goals reflect broad aims and basic values. The goals of the Noise Element link the assets and opportunities and problems and issues identified with the policies and programs which follow. They establish emphasis and tone for policy and program formulation. Future decisions and activities of Orange city government should be guided by the intent of the following goals:

- . To reduce transportation noise to a level that does not jeopardize health and welfare.
- . To minimize noise levels of future transportation facilities.
- . To establish compatible land use adjacent to transportation facilities.
- . To alert the public regarding the potential impact of noise sources.
- . To encourage intergovernmental coordination to abate noise.
- . To provide sufficient information concerning the community noise environment so that noise may be effectively considered in the land use planning process.
- . To develop strategies for abatement of excessive noise exposures involving mitigating measures in combination with re-zoning as appropriate to avoid incompatible land uses.
- . To protect those existing regions of the City for which noise environments are deemed acceptable and also those locations throughout the City deemed "noise sensitive".

The following policies provide direction for the achievement of Element goals. They will be carried out through implementation programs utilizing public and private resources.

- . The City will enforce acceptable noise standards consistent with health and quality-of-life goals and employ effective techniques of noise abatement through such means as building codes, subdivision and zoning ordinances.
- . The City will develop further strategies for noise reduction where noise-impacted areas exist.
- . The use of quieter automobiles, machinery and equipment will be encouraged and the City will establish noise criteria in their specifications for purchase of City vehicles and their components.
- . A national uniform sound certification program of published sound ratings for various types of equipment that are sources of noise will be encouraged.
- . The City will encourage needed legislation by the state and federal government which will provide for noise abatement and the distribution of the costs of noise abatement programs among the producers of noise.
- . Systematic noise surveys of the City will be periodically conducted as necessary.
- . Criteria for location of certain "noise sensitive" land uses and facilities (schools, convalescent hospitals, hospitals) will be developed. These facilities will be adequately designed and insulated to protect occupants from unusually loud exterior noise.
- . Consideration of the noise environment will be a part of all land use planning efforts.
- . Unnecessary outdoor noise will be regulated or abated.
- . Orange County and all other cities within the County will be encouraged to adopt definitive noise ordinances and policies that are basically consistent throughout the county.
- . Additional fund sources from the appropriate levels of government to underwrite the costs of major noise abatement programs will be explored.
- . Orange will periodically review these goals and policies to revise and add to them as our community experience, knowledge and capabilities increase.
- . Noise from motors, appliances, air conditioners and other consumer products shall not disturb the occupants of surrounding properties.

- . Businesses such as hotels and motels, which find it economical to locate in noise-impacted areas, shall include noise attenuation consideration in their design and construction.
- . Subdivision applications shall provide assessments of noise levels anticipated within the proposed subdivision pursuant to the California Environmental Quality Act.
- . The City will promote a more efficient, comfortable and quieter bus service.
- . The City will encourage the development of alternative transportation modes which minimize noise within residential areas.
- . The City will regulate noise from industrial activities through various forms of licenses, permits, zoning and regulations to meet performance standards that limit the maximum permitted intrusive noise levels across commercial and residential boundaries.
- . The City will employ noise mitigation measures in the design of all future streets and highways and buffer the arterials from adjoining areas wherever possible.
- . Where appropriate, sound walls and landscaping along existing and future highways and railroad rights-of-way to beautify the landscape and reduce noise will be required.

IMPLEMENTATION

The City of Orange has at its disposal a number of different means to control noise and the adverse effects of noise in the community. Problems created by existing land use situations will be dealt with under the provisions of the Noise Ordinance for the City of Orange which is included as a part of this Element. Assignments of the various responsibilities relating to the enforcement provisions of this ordinance are well established and in operation. Future problems can be substantially mitigated by intelligent review and evaluation of each new development proposal in the community in relation to both its noise generating potential and the potential effects of noise on the population that will result from the project.

Periodic review and updating of this Element of the General Plan should be done when:

- (1) The entire General Plan is re-evaluated.
- (2) Major traffic additions or rearrangements occur.
- (3) New major industrial areas are being considered.

Although a good public relations program by the noise maker may have been the traditional way to solve a noise problem, increasingly sophisticated citizens of today will not accept this type of solution. More frequently they are turning to their local elected representatives to develop and enforce an effective noise abatement program that is responsive to today's needs. This Element helps to identify what noise is and the magnitude of noise in Orange and outline the practical steps that can be taken to effectively improve the noise environment in this community.

ORDINANCE NO. 17-74

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY
OF ORANGE ESTABLISHING NOISE CONTROL REGULATIONS

AMENDMENT 2-74

CITY OF ORANGE

THE CITY COUNCIL OF THE CITY OF ORANGE DOES ORDAIN AS FOLLOWS:

SECTION I:

Chapter 5, containing Sections 9500 through 9500.17, is added to Article IX of the Orange Municipal Code to read as follows:

Section 9500.1 Declaration of Policy.

In order to control unnecessary excessive and annoying sounds emanating from the City of Orange, it is hereby declared to be the policy of the City to prohibit such sounds generated from all sources as specified in this Chapter.

It is determined that certain sound levels are detrimental to the public health, welfare and safety, and contrary to public interest.

Section 9500.2 Definitions.

The following words, phrases and terms as used in this Chapter shall have the meaning as indicated below:

AMBIENT NOISE LEVEL shall mean the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

CUMULATIVE PERIOD shall mean an additive period of time composed of individual time segments which may be continuous or interrupted.

DECIBEL (dB) shall mean a unit which denotes the ratio between two (2) quantities which are proportional to power: the number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

EMERGENCY MACHINERY, VEHICLE OR WORK shall mean any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

FIXED NOISE SOURCE shall mean a stationary device which creates sounds while fixed or motionless, including but not limited to industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

GRADING shall mean any excavating or filling of earth material or any combination thereof conducted to prepare a site for construction or other improvements thereon.

IMPACT NOISE shall mean the noise produced by the collision of one mass in motion with a second mass which may be either in motion or at rest.

MOBILE NOISE SOURCE shall mean any noise source other than a fixed noise source.

NOISE LEVEL shall mean the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of 20 micronewtons per square meter. The unit of measurement shall be designated as dB (A).

NOISE VARIANCE BOARD shall mean an administrative board of five (5) members appointed by the Board of Supervisors of the County of Orange, per Title 4, Division 6, Article 1 of the Codified Ordinances of the County of Orange.

PERSON shall mean a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

RESIDENTIAL PROPERTY shall mean a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

SIMPLE TONE NOISE shall mean a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

SOUND LEVEL METER shall mean an instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

SOUND PRESSURE LEVEL of a sound, in decibels, shall mean twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

Section 9500.3 Noise Level Measurement Criteria.

Any noise level measurements made pursuant to the provisions of this Chapter shall be performed using a sound level meter as defined in Section 9500.2.

Section 9500.4 Designated Noise Zones.

The residential properties hereinafter described are hereby assigned to the following noise zones:

Noise Zone 1: All residential properties in the City of Orange and adjacent areas.

Section 9500.5 Exterior Noise Standards.

- (a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone.

NOISE STANDARDS

<u>NOISE ZONE</u>	<u>NOISE LEVEL</u>	<u>TIME PERIOD</u>
1	55 dB (A)	7:00 AM - 10:00 PM
	50 dB (A)	10:00 PM - 7:00 AM

- (b) It shall be unlawful for any person at any location within the City to create any noise, or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person, which causes the noise level when measured on any other residential property to exceed:
- (1) The noise standard for a cumulative period of more than thirty minutes in any hour; or
 - (2) The noise standard plus 5 dB (A) for a cumulative period of more than fifteen minutes in any hour; or
 - (3) The noise standard plus 10 dB (A) for a cumulative period of more than five minutes in any hour; or
 - (4) The noise standard plus 15 dB (A) for a cumulative period of more than one minute in any hour; or
 - (5) The noise standard plus 20 dB (A) for any period of time.
- (c) In the event the ambient noise level exceeds any of the above five noise limit categories, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. Furthermore, the maximum permissible noise level shall never exceed the maximum ambient noise level.
- (d) Each of the noise limits specified above shall be reduced by 5 dB (A) for impact or simple tone noises, or for noises consisting of speech or music.

Section 9500.6 Interior Noise Standards.

- (a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

<u>NOISE ZONE</u>	<u>NOISE LEVEL</u>	<u>TIME PERIOD</u>
1	55 dB (A) 45 dB (A)	7:00 AM - 10:00 PM 10:00 PM - 7:00 AM

- (b) It shall be unlawful for any person at any location within the City to create any noise or to allow the creation of any noise on property owned, leased, occupied or otherwise controlled by such person which causes the noise level when measured within a dwelling unit on any residential property to exceed:
- (1) The noise standard for a cumulative period of more than five (5) minutes in any hour; or
 - (2) The noise standard plus five (5) dB (A) for a cumulative period of more than one (1) minute in any hour; or
 - (3) The noise standard plus ten (10) dB (A) for any period of time.
- (c) In the event the ambient noise level exceeds any of the above three noise limit categories, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. Furthermore, the maximum permissible noise level shall never exceed the maximum ambient noise level.
- (d) Each of the noise limits specified above shall be reduced by 5 dB (A) for impact or simple tone noises, or for noises consisting of speech or music.

Section 9500.7 Special Provisions.

The following activities shall be exempted from the provisions of this Chapter:

- (a) School bands, school athletic and school entertainment events.
- (b) Outdoor gatherings, public dances, shows and sporting and entertainment events provided said events are conducted pursuant to any permit requirements established by the City of Orange.
- (c) Activities conducted on public parks, public playgrounds, and public or private school grounds.

- (d) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.
- (e) Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 9:00 PM and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday.
- (f) All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather conditions.
- (g) Mobile noise sources associated with agricultural operations provided such operations do not take place between the hours of 8:00 PM and 7:00 AM on weekdays, including Saturday, or at any time on Sunday or a federal holiday.
- (h) Mobile noise sources associated with agricultural pest control through pesticide application provided that the application is made in accordance with restricted material permits issued by or regulations enforced by the Agricultural Commissioner.
- (i) Noise sources associated with the maintenance of real property provided said activities take place between the hours of 7:00 AM and 8:00 PM on any day except Sunday or a federal holiday.
- (j) Any activity to the extent regulation thereof has been preempted by State or federal law.

Section 9500.8 Schools, Hospitals and Churches - Special Provisions.

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use, to exceed the noise limits as specified in Section 9500.5 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three separate locations within one-tenth of a mile of the institution indicating the presence of a school, church or hospital.

Section 9500.9 Air Conditioning and Refrigeration - Special Provisions.

Until January 19, 1979, the noise standards enumerated in Sections 9500.5 and 9500.6 shall be increased 8 dB (A) where the alleged offensive noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of this ordinance.

Section 9500.10 Noise Level Measurement.

The location selected for measuring exterior noise levels shall be at any point on the affected residential property. Interior noise measurements shall be made within the affected residential unit. The measurement shall be made at a point at least four (4) feet from the wall, ceiling or floor nearest the noise source.

Section 9500.11 Manner of Enforcement.

The County Health Officer and his duly authorized representatives are directed to enforce the provisions of this Chapter. The County Health Officer and his duly authorized representatives are authorized, pursuant to Penal Code Section 836.5, to arrest any person without a warrant when they have reasonable cause to believe that such person has committed a misdemeanor in their presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this Chapter while such person is engaged in the performance of his duty.

Section 9500.12 Variance Procedure.

The owner or operator of a noise source which violates any of the provisions of this Chapter may file an application with the Health Officer for a variance from the provisions thereof wherein said owner or operator shall set forth all actions taken to comply with said provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. Said application shall be accompanied by a fee in the amount of seventy-five dollars (\$75.00). A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one application. Upon receipt of said application and fee, the Health Officer shall refer it with his recommendation thereon within thirty (30) days to the Noise Variance Board for action thereon in accordance with the provisions of this Chapter. Copies of all applications for variances and other notices shall be sent to the City of Orange.

An applicant for a variance shall remain subject to prosecution under the terms of this ordinance until a variance is granted.

Section 9500.13 Noise Variance Board.

The Noise Variance Board shall evaluate all applications for variance from the requirements of this Chapter and may grant said variances with respect to time for compliance, subject to such terms, conditions and requirements as it may deem reasonable to achieve maximum compliance with the provisions of this Chapter. Said terms, conditions, and requirements may include, but shall not be limited to limitations on noise levels and operating hours. Each such variance shall set forth in detail the approved method of achieving maximum compliance and a time schedule for its accomplishment. In its determinations said Board shall consider the magnitude of nuisance caused by the offensive noise; the uses of property within the area of impingement by the noise; the time factors related to study, design, financing and construction of remedial work; the economic factors related to age and useful life of equipment; and the general public interest and welfare. Any variance granted by said Board shall be by resolution and shall be transmitted to the Health Officer for enforcement. Any violation of the terms of said variance shall be unlawful.

Section 9500.14 Appeals.

Within fifteen (15) days following the decision of the Variance Board on an application the applicant, the Health Officer, or any member of the City Council, may appeal the decision to the City Council by filing a notice of appeal with the Secretary of the Variance Board. In the case of an appeal by the applicant for a variance, the notice of appeal shall be accompanied by a fee to be computed by the Secretary on the basis of the estimated cost of preparing the materials required to be forwarded to the City Council, as discussed hereafter. If the actual cost of such preparation differs from the estimated cost, appropriate payments shall be made either to or by the Secretary.

Within fifteen (15) days following receipt of a notice of appeal and the appeal fee, the Secretary of the Variance Board shall forward to the City Council copies of the application for variance; the recommendation of the Health Officer; the notice of appeal, all evidence concerning said application received by the Variance Board and its decision thereon. In addition, any person may file with the City Council written arguments supporting or attacking said decision and the Council may in its discretion hear oral arguments thereon. The City Clerk shall mail to the applicant a notice of the date set for hearing of the appeal. The notice shall be mailed at least ten days prior to the hearing date.

Within sixty (60) days following its receipt of the notice of appeal, the City Council shall either affirm, modify or reverse the decision of the Variance Board. Such decision shall be based upon the Council's evaluation of the matters submitted to the Council in light of the powers conferred on the Variance Board and the factors to be considered, both as enumerated in Sections 9500.12 and 9500.13.

As part of its decision the City Council may direct the Variance Board to conduct further proceedings on said application. Failure of the City Council to affirm, modify or reverse the decision of the Variance Board within said 60-day period shall constitute an affirmance of the decision.

Section 9500.15 - Violations: Misdemeanors.

Any person violating any of the provisions of this Chapter shall be deemed guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this Chapter shall not be construed as permitting conduct not proscribed herein and shall not affect the enforceability of any other applicable provisions of law.

Section 9500.16 - Violation: Public Nuisance.

Any violation of this Chapter is declared to be a public nuisance and may be abated in accordance with law. The expense of such abatement may by resolution of the City Council be declared to be a lien against the property on which such nuisance is maintained and such lien shall be made a personal obligation of the property owner.

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